

SEQUENCE LISTING

<110> Istituto Superiore di Sanità
National Institutes of Health

<120> COLORECTAL ANTIGEN

<130> WPP88367

<150> US 60/512,040

<151> 2003-10-15

<160> 20

<170> PatentIn version 3.3

<210> 1

<211> 1413

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (85)..(1395)

<220>

<221> misc_feature

<222> (1180)..(1240)

<223> nucleotide sequence encoding the immunogenic peptide

<400> 1

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cctgcatccc atgactcgga gctg atg gcc ttc atg acg agg aag ttg tgg 111
Met Ala Phe Met Thr Arg Lys Leu Trp
1 5

gac ctg gag cag cag gtg aag gcc cag act gat gag ata ctg tcc aag 159
Asp Leu Glu Gln Gln Val Lys Ala Gln Thr Asp Glu Ile Leu Ser Lys
10 15 20 25

gat cag aag ata gcg gcc cta gag gac ctg gtg cag acc ctc cgg cca 207
Asp Gln Lys Ile Ala Ala Leu Glu Asp Leu Val Gln Thr Leu Arg Pro
30 35 40

cac cca gcc gag gca acc ctg cag cgg cag gag gaa ctg gag acg atg 255
His Pro Ala Glu Ala Thr Leu Gln Arg Gln Glu Glu Leu Glu Thr Met
45 50 55

tgt gtg cag ctg cag cgg cag gtc agg gag atg gag cgg ttc ctc agt 303
Cys Val Gln Leu Gln Arg Gln Val Arg Glu Met Glu Arg Phe Leu Ser
60 65 70

gac tat ggc ctg cag tgg gtg ggc gag ccc atg gac cag gag gac tca 351
Asp Tyr Gly Leu Gln Trp Val Gly Glu Pro Met Asp Gln Glu Asp Ser
75 80 85

gag agc aag aca gtc tca gag cat ggc gag agg gac tgg atg aca gcc 399
Glu Ser Lys Thr Val Ser Glu His Gly Glu Arg Asp Trp Met Thr Ala
90 95 100 105

aag aag ttc tgg aag cca ggg gac tca ttg gcg ccc cct gag gtg gac 447
Lys Lys Phe Trp Lys Pro Gly Asp Ser Leu Ala Pro Pro Glu Val Asp
110 115 120

ttt gac agg ctg ctg gcc agc ctg cag gat ctt agt gag ctg gtg gta 495
Phe Asp Arg Leu Leu Ala Ser Leu Gln Asp Leu Ser Glu Leu Val Val

125	130	135	
gag ggt gac acc caa gtg aca cca gtg ccc ggc ggg gca cgg ctg cgt Glu Gly Asp Thr Gln Val Thr Pro Val Pro Gly Gly Ala Arg Leu Arg			543
140	145	150	
acc ctc gag ccc atc ccg ctg aag ctc tac cgg aat ggc atc atg atg Thr Leu Glu Pro Ile Pro Leu Lys Leu Tyr Arg Asn Gly Ile Met Met			591
155	160	165	
ttc gac ggg ccc ttc cag ccc ttc tac gat ccc tcc aca cag cgc tgc Phe Asp Gly Pro Phe Gln Pro Phe Tyr Asp Pro Ser Thr Gln Arg Cys			639
170	175	180	185
ctc cga gac ata ttg gat ggc ttc ttt ccc tca gag ctc cag cga ctg Leu Arg Asp Ile Leu Asp Gly Phe Pro Ser Glu Leu Gln Arg Leu			687
190	195	200	
tac ccc aat ggg gtc ccc ttt aag gtg agt gac ttg cgc aat cag gtc Tyr Pro Asn Gly Val Pro Phe Lys Val Ser Asp Leu Arg Asn Gln Val			735
205	210	215	
tac ctg gag gat gga ctg gac ccc ttc cca ggc gag ggc cgt gtg gtg Tyr Leu Glu Asp Gly Leu Asp Pro Phe Pro Gly Glu Gly Arg Val Val			783
220	225	230	
ggc agg cag cgg atg cac aag gcc ttg gac agg gtg gag gag cac cca Gly Arg Gln Arg Met His Lys Ala Leu Asp Arg Val Glu Glu His Pro			831
235	240	245	
ggc tcc agg atg act gct gag aaa ttt ctg aac agg ctc ccc aag ttt Gly Ser Arg Met Thr Ala Glu Lys Phe Leu Asn Arg Leu Pro Lys Phe			879
250	255	260	265
gtg atc cgg caa ggc gag gtg att gac atc cgg ggc ccc atc agg gac Val Ile Arg Gln Gly Glu Val Ile Asp Ile Arg Gly Pro Ile Arg Asp			927
270	275	280	
acc ttg cag aac tgc cca ttg cct gcc cgg atc cag gag att gtg Thr Leu Gln Asn Cys Cys Pro Leu Pro Ala Arg Ile Gln Glu Ile Val			975
285	290	295	
gtg gag acg ccc acc ttg gcc gct gag cga gag agg agc cag gag tca Val Glu Thr Pro Thr Leu Ala Ala Glu Arg Glu Arg Ser Gln Glu Ser			1023
300	305	310	
ccc aac aca ccg gca ccc ccg ctc tcc atg ctg cgc atc aag tct gag Pro Asn Thr Pro Ala Pro Pro Leu Ser Met Leu Arg Ile Lys Ser Glu			1071
315	320	325	
aat ggg gaa cag gcc ttc cta ctg atg atg cag cct gac aac acc att Asn Gly Glu Gln Ala Phe Leu Leu Met Met Gln Pro Asp Asn Thr Ile			1119
330	335	340	345
ggg gac gtg cga gct ctg cta gcg cag gcc agg gtc atg gat gcc tct Gly Asp Val Arg Ala Leu Leu Ala Gln Ala Arg Val Met Asp Ala Ser			1167
350	355	360	
gcc ttt gag atc ttc agc aca ttc ccg ccc acc ctc tac cag gac gat Ala Phe Glu Ile Phe Ser Thr Phe Pro Pro Thr Leu Tyr Gln Asp Asp			1215
365	370	375	
aca ctc acg ctg cag gct gca ggc att gtg ccc aaa gca gca ctg ctg Thr Leu Thr Leu Gln Ala Ala Gly Leu Val Pro Lys Ala Ala Leu Leu			1263
380	385	390	
ctg cgg gca cgc cga gcc ccg aag tcc agc ctg aaa ttc agt cct ggt Leu Arg Ala Arg Ala Pro Lys Ser Ser Leu Lys Phe Ser Pro Gly			1311

395	400	405	
ccc tgt ccc ggt ccc ggt ccc ggc ccc agt ccc ggt ccc ggt ccc ggc			1359
Pro	Cys	Pro	Gly
410	415	420	425
tcc agt ccc tgt ccc gga ccc agt ccc agc ccc caa taaagcaccc			1405
Ser	Ser	Pro	Gly
430	435	Pro	Ser
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<213> Homo sapiens			
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20	25	30	
Glu Asp Leu Val Gln Thr Leu Arg Pro His Pro Ala Glu Ala Thr Leu			
35	40	45	
Gln Arg Gln Glu Glu Leu Glu Thr Met Cys Val Gln Leu Gln Arg Gln			
50	55	60	
Val Arg Glu Met Glu Arg Phe Leu Ser Asp Tyr Gly Leu Gln Trp Val			
65	70	75	80
Gly Glu Pro Met Asp Gln Glu Asp Ser Glu Ser Lys Thr Val Ser Glu			
85	90	95	
His Gly Glu Arg Asp Trp Met Thr Ala Lys Lys Phe Trp Lys Pro Gly			
100	105	110	
Asp Ser Leu Ala Pro Pro Glu Val Asp Phe Asp Arg Leu Leu Ala Ser			
115	120	125	
Leu Gln Asp Leu Ser Glu Leu Val Val Glu Gly Asp Thr Gln Val Thr			
130	135	140	
Pro Val Pro Gly Gly Ala Arg Leu Arg Thr Leu Glu Pro Ile Pro Leu			
145	150	155	160
Lys Leu Tyr Arg Asn Gly Ile Met Met Phe Asp Gly Pro Phe Gln Pro			
165	170	175	
Phe Tyr Asp Pro Ser Thr Gln Arg Cys Leu Arg Asp Ile Leu Asp Gly			
180	185	190	

Phe Phe Pro Ser Glu Leu Gln Arg Leu Tyr Pro Asn Gly Val Pro Phe
195 200 205

Lys Val Ser Asp Leu Arg Asn Gln Val Tyr Leu Glu Asp Gly Leu Asp
210 215 220

Pro Phe Pro Gly Glu Gly Arg Val Val Gly Arg Gln Arg Met His Lys
225 230 235 240

Ala Leu Asp Arg Val Glu Glu His Pro Gly Ser Arg Met Thr Ala Glu
245 250 255

Lys Phe Leu Asn Arg Leu Pro Lys Phe Val Ile Arg Gln Gly Glu Val
260 265 270

Ile Asp Ile Arg Gly Pro Ile Arg Asp Thr Leu Gln Asn Cys Cys Pro
275 280 285

Leu Pro Ala Arg Ile Gln Glu Ile Val Val Glu Thr Pro Thr Leu Ala
290 295 300

Ala Glu Arg Glu Arg Ser Gln Glu Ser Pro Asn Thr Pro Ala Pro Pro
305 310 315 320

Leu Ser Met Leu Arg Ile Lys Ser Glu Asn Gly Glu Gln Ala Phe Leu
325 330 335

Leu Met Met Gln Pro Asp Asn Thr Ile Gly Asp Val Arg Ala Leu Leu
340 345 350

Ala Gln Ala Arg Val Met Asp Ala Ser Ala Phe Glu Ile Phe Ser Thr
355 360 365

Phe Pro Pro Thr Leu Tyr Gln Asp Asp Thr Leu Thr Leu Gln Ala Ala
370 375 380

Gly Leu Val Pro Lys Ala Ala Leu Leu Leu Arg Ala Arg Arg Ala Pro
385 390 395 400

Lys Ser Ser Leu Lys Phe Ser Pro Gly Pro Cys Pro Gly Pro Gly Pro
405 410 415

Gly Pro Ser Pro Gly Pro Gly Ser Ser Pro Cys Pro Gly Pro
420 425 430

Ser Pro Ser Pro Gln
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<210> 3
<211> 60
<212> DNA
<213> Homo sapiens

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 <210> 4
 <211> 20
 <212> PRT
 <213> Homo sapiens

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 Gln Ala Ala Gly
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 <210> 5
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 <213> Homo sapiens

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 accctctacc aggacgatac actcacgctg caggctgcag gc 42

 <210> 6
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 <212> PRT
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 Thr Leu Tyr Gln Asp Asp Thr Leu Thr Leu Gln Ala Ala Gly
 1 5 10

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 <212> DNA
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 aagacagtct cagagcatgg cgagagggac tggatgacag ccaagaagtt ctggaagcca 120
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 cttagtgagc tggtggtaga gggtgacacc caagtacac cagtccccgg cggggcacgg 240
 ctgcgtaccc tcgagccat cccgctgaag ctctaccgga atggcatcat gatgttcgac 300
 gggcccttcc agcccttcta cgatccctcc acacagcgct gcctccgaga catattggat 360
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 gacttgcgca atcaggtcta cctggaggat ggactggacc cttcccagg cgagggccgt 480
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 ccggtccc 1028

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 <213> Homo sapiens
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Asp Ser Glu Ser Lys Thr Val Ser Glu His Gly Glu Arg Asp Trp Met
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Thr Ala Lys Lys Phe Trp Lys Pro Gly Asp Ser Leu Ala Pro Pro Glu
 35 40 45

Val Asp Phe Asp Arg Leu Leu Ala Ser Leu Gln Asp Leu Ser Glu Leu
 50 55 60

Val Val Glu Gly Asp Thr Gln Val Thr Pro Val Pro Gly Gly Ala Arg
 65 70 75 80

Leu Arg Thr Leu Glu Pro Ile Pro Leu Lys Leu Tyr Arg Asn Gly Ile
 85 90 95

Met Met Phe Asp Gly Pro Phe Gln Pro Phe Tyr Asp Pro Ser Thr Gln
 100 105 110

Arg Cys Leu Arg Asp Ile Leu Asp Gly Phe Phe Pro Ser Glu Leu Gln
 115 120 125

Arg Leu Tyr Pro Asn Gly Val Pro Phe Lys Val Ser Asp Leu Arg Asn
 130 135 140

Gln Val Tyr Leu Glu Asp Gly Leu Asp Pro Phe Pro Gly Glu Gly Arg
 145 150 155 160

Val Val Gly Arg Gln Arg Met His Lys Ala Leu Asp Arg Val Glu Glu
 165 170 175

His Pro Gly Ser Arg Met Thr Ala Glu Lys Phe Leu Asn Arg Leu Pro
 180 185 190

Lys Phe Val Ile Arg Gln Gly Glu Val Ile Asp Ile Arg Gly Pro Ile
195 200 205

Arg Asp Thr Leu Gln Asn Cys Cys Pro Leu Pro Ala Arg Ile Gln Glu
210 215 220

Ile Val Val Glu Thr Pro Thr Leu Ala Ala Glu Arg Glu Arg Ser Gln
225 230 235 240

Glu Ser Pro Asn Thr Pro Ala Pro Pro Leu Ser Met Leu Arg Ile Lys
245 250 255

Ser Glu Asn Gly Glu Gln Ala Phe Leu Leu Met Met Gln Pro Asp Asn
260 265 270

Thr Ile Gly Asp Val Arg Ala Leu Leu Ala Gln Ala Arg Val Met Asp
275 280 285

Ala Ser Ala Phe Glu Ile Phe Ser Thr Phe Pro Pro Thr Leu Tyr Gln
290 295 300

Asp Asp Thr Leu Thr Leu Gln Ala Ala Gly Leu Val Pro Lys Ala Ala
305 310 315 320

Leu Leu Leu Arg Ala Arg Arg Ala Pro Lys Ser Ser Leu Lys Phe Ser
325 330 335

Pro Gly Pro Cys Pro Gly Pro
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<210> 9
<211> 6
<212> PRT
<213> Homo sapiens

<400> 9

Phe Ser Thr Phe Pro Pro
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<210> 10
<211> 6
<212> PRT
<213> Homo sapiens

<400> 10

Leu Val Pro Lys Ala Ala
1 5

<210> 11
<211> 294
<212> DNA
<213> Homo sapiens

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 cttgtgcacca aagcagcact gctgctgcgg gcacgcccgg ccccgaaatc cagcctgaaa 180
 ttcagtcctg gtccctgtcc cggtcccggt cccggccca gtcccggtcc cggtcccggtc 240
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<210> 12
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 <213> Homo sapiens

<400> 12

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 20 25 30

Thr Leu Thr Leu Gln Ala Ala Gly Leu Val Pro Lys Ala Ala Leu Leu
 35 40 45

Leu Arg Ala Arg Arg Ala Pro Lys Ser Ser Leu Lys Phe Ser Pro Gly
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Pro Cys Pro Gly Pro Gly Pro Ser Pro Gly Pro Gly Pro Gly
 65 70 75 80

Ser Ser Pro Cys Pro Gly Pro Ser Pro Ser Pro Gln
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<210> 13
 <211> 19
 <212> DNA
 <213> ARTIFICIAL

 <220>
 <223> PCR primer sequence

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<210> 14
 <211> 18
 <212> DNA
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 <220>
 <223> PCR primer sequence

 <400> 14
 ccttgaatgt ggtcatct 18

<210> 15
 <211> 23
 <212> DNA
 <213> artificial

 <220>
 <223> PCR primer sequence

 <400> 15
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23

<210> 16
 <211> 20
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<210> 17
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 <213> Homo sapiens

 <400> 17

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Gln Ala Ala Gly
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<210> 18
 <211> 20
 <212> PRT
 <213> Homo sapiens

 <400> 18

Thr Leu Tyr Gln Asp Asp Thr Leu Thr Leu Gln Ala Ala Gly Leu Val
 1 5 10 15

Pro Lys Ala Ala
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<210> 19
 <211> 1771
 <212> DNA
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tagcaagacc cgaaaagtgc ccctgccctc ggagcctatg aatcctggga ggcgaggaat 300
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 tgactatggc ctgcagtggg tggcgagcc catggaccag gaggactcag agagcaagac 720
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<210> 20
 <211> 512
 <212> PRT
 <213> Homo sapiens

<400> 20

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Asp Glu Asp Glu Val Asp Met Leu Ser Asp Gly Cys Gly Ser Glu Glu
 35 40 45

Lys Ile Ser Val Pro Ser Cys Tyr Gly Gly Ile Gly Ala Pro Val Ser
 50 55 60

Arg Gln Val Pro Ala Ser His Asp Ser Glu Leu Met Ala Phe Met Thr
 65 70 75 80

Arg Lys Leu Trp Asp Leu Glu Gln Gln Val Lys Ala Gln Thr Asp Glu
 85 90 95

Ile Leu Ser Lys Asp Gln Lys Ile Ala Ala Leu Glu Asp Leu Val Gln
 100 105 110

Thr Leu Arg Pro His Pro Ala Glu Ala Thr Leu Gln Arg Gln Glu Glu
 115 120 125

Leu Glu Thr Met Cys Val Gln Leu Gln Arg Gln Val Arg Glu Met Glu
 130 135 140

Arg Phe Leu Ser Asp Tyr Gly Leu Gln Trp Val Gly Glu Pro Met Asp
 145 150 155 160

Gln Glu Asp Ser Glu Ser Lys Thr Val Ser Glu His Gly Glu Arg Asp
 165 170 175

Trp Met Thr Ala Lys Lys Phe Trp Lys Pro Gly Asp Ser Leu Ala Pro
 180 185 190

Pro Glu Val Asp Phe Asp Arg Leu Leu Ala Ser Leu Gln Asp Leu Ser
 195 200 205

Glu Leu Val Val Glu Gly Asp Thr Gln Val Thr Pro Val Pro Gly Gly
 210 215 220

Ala Arg Leu Arg Thr Leu Glu Pro Ile Pro Leu Lys Leu Tyr Arg Asn
 225 230 235 240

Gly Ile Met Met Phe Asp Gly Pro Phe Gln Pro Phe Tyr Asp Pro Ser
 245 250 255

Thr Gln Arg Cys Leu Arg Asp Ile Leu Asp Gly Phe Phe Pro Ser Glu
 260 265 270

Leu Gln Arg Leu Tyr Pro Asn Gly Val Pro Phe Lys Val Ser Asp Leu
 275 280 285

Arg Asn Gln Val Tyr Leu Glu Asp Gly Leu Asp Pro Phe Pro Gly Glu
 290 295 300

Gly Arg Val Val Gly Arg Gln Arg Met His Lys Ala Leu Asp Arg Val
305 310 315 320

Glu Glu His Pro Gly Ser Arg Met Thr Ala Glu Lys Phe Leu Asn Arg
325 330 335

Leu Pro Lys Phe Val Ile Arg Gln Gly Glu Val Ile Asp Ile Arg Gly
340 345 350

Pro Ile Arg Asp Thr Leu Gln Asn Cys Cys Pro Leu Pro Ala Arg Ile
355 360 365

Gln Glu Ile Val Val Glu Thr Pro Thr Leu Ala Ala Glu Arg Glu Arg
370 375 380

Ser Gln Glu Ser Pro Asn Thr Pro Ala Pro Pro Leu Ser Met Leu Arg
385 390 395 400

Ile Lys Ser Glu Asn Gly Glu Gln Ala Phe Leu Leu Met Met Gln Pro
405 410 415

Asp Asn Thr Ile Gly Asp Val Arg Ala Leu Leu Ala Gln Ala Arg Val
420 425 430

Met Asp Ala Ser Ala Phe Glu Ile Phe Ser Thr Phe Pro Pro Thr Leu
435 440 445

Tyr Gln Asp Asp Thr Leu Thr Leu Gln Ala Ala Gly Leu Val Pro Lys
450 455 460

Ala Ala Leu Leu Leu Arg Ala Arg Arg Ala Pro Lys Ser Ser Leu Lys
465 470 475 480

Phe Ser Pro Gly Pro Cys Pro Gly Pro Gly Pro Gly Pro Ser Pro Gly
485 490 495

Pro Gly Pro Gly Ser Ser Pro Cys Pro Gly Pro Ser Pro Ser Pro Gln
500 505 510